

BIO102 Assignment1

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The following molecule is best described as a(n) _____. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2$

- ☐ A. carbohydrate
- ☐ B. protein
-
- ☒ C. organic compound
- ☐ D. inorganic compound

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A fossil was found and determined by radiometric dating to be 11,400 years old. What is the ratio of carbon-14 to carbon-12 in this fossil compared to its environment?

- ☐ A. 50%
- ☒ B. 25%
- ☐ C. 37.5%
- ☐ D. 12.5%

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A glycerol with three fatty acids attached is referred to as a _____

- ☐ A. prostaglandin
- ☒ B. fat
- ☐ C. steroid
- ☐ D. nucleic acid

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A protein's function is most dependent on its _____.

- ☐ A. weight
- ☐ B. size
- ☐ C. pH
- ☒ D. shape

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Adjacent water molecules are connected by the _____.

- ☐ A. electrical attraction between the hydrogen of one water molecule and the oxygen of another water molecule
- ☒ B. electrical attraction between the hydrogen atoms of adjacent water molecules
- ☐ C. sharing of electrons between adjacent oxygen molecules
- ☐ D. sharing of electrons between the hydrogen of one water molecule and the oxygen of another water molecule

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下面这题选A

29) **Amino acids** include a side group as well as _____.

- A) a central carbon, a hydrogen atom, an amino group, and a carboxyl group
- B) a central carbon, a hydrogen atom, a hydroxyl group, and a carbonyl group
- C) a central nitrogen, a carbon atom, a hydroxyl group, and a carbonyl group
- D) a central nitrogen, a carbon atom, an amino group, and a carbonyl group

Animals store carbohydrates as _____.

- ☐ A. starch
- ☒ B. glycogen
- ☐ C. cellulose
- ☐ D. maltose

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Complete the equation:

monosaccharide + monosaccharide ? _____ + water

- ☐ A. polypeptide
- ☒ B. polysaccharide
- ☐ C. disaccharide
- ☐ D. fat

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Enzymes are _____.

- ☐ A. amino acids
- ☒ B. proteins
- ☐ C. phospholipids
- ☐ D. monosaccharides

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How does RNA differ from DNA?

- ☐ A. RNA is a polymer of amino acids; DNA is a polymer of nucleotides
- ☐ B. RNA is double-stranded; DNA is single-stranded
- ☒ C. RNA contains uracil; DNA contains thymine
- ☐ D. In RNA G pairs with T; in DNA G pairs with C

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Nucleic acids are polymers of _____ monomers.

- ☐ A. monosaccharide
- ☐ B. fatty acid
- ☒ C. nucleotide
- ☐ D. DNA

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People with lactose intolerance do not have enough _____

- ☐ A. fructose
- ☐ B. glucose
- ☐ C. lactose
- ☒ D. lactase

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Sweating cools your body by _____

- ☐ A. cohesion
- ☒ B. evaporative cooling

- ☐ C. radiation
- ☐ D. hydrogen bonding

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When a base is added to a buffered solution, the buffer will _____.

- ☒ A. donate H^+ ions
- ☐ B. donate OH^- ions
- ☐ C. form covalent bonds with the base
- ☐ D. accept water molecules

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Which of the following is NOT a potential impact of ocean acidification?

- ☐ A. Changes in metabolism of marine animals
- ☒ B. Decreasing H^+ concentrations
- ☐ C. Increasing carbonic acid concentrations
- ☐ D. Coral bleaching

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Which of the following is lowest in unsaturated fats?

- ☐ A. canola oil
- ☐ B. salmon
- ☐ C. corn oil
- ☒ D. beef

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Why is water considered a polar molecule?

- ☐ A. Both hydrogen atoms are at one end of the molecule, and the oxygen atom is at the other end
- ☐ B. The oxygen atom attracts the hydrogen atoms
- ☒ C. The oxygen end of the molecule has a slight negative charge, and the hydrogen end has a slight positive charge
- ☐ D. The oxygen atom is found between the two hydrogen atoms

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_____ is a steroid

- ☒ A. Estrogen
- ☐ B. Butter
- ☐ C. Amino acid
- ☐ D. Sucrose

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Substances that block an enzyme's active site are _____.

- ☒ A. enzyme inhibitors
- ☐ B. enzyme substrates
- ☐ C. enzyme catalysts
- ☐ D. enzyme products

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Active transport _____.

- ☐ A. uses ATP as an energy source
- ☐ B. can move solutes against their concentration gradient
- ☐ C. can involve the transport of ions
- ☒ D. all of the answer options

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Anything that prevents ATP formation will most likely _____.

- ☐ A. force the cell to rely on ADP for energy
- ☒ B. result in cell death
- ☐ C. have no effect on the cell
- ☐ D. force the cell to rely on lipids for energy

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22选D，自由核糖体是造胞内蛋白的，粗面内质网是造胞外蛋白的，因为要胞吐

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Cells in the thyroid gland produce and secrete thyroid hormone (a protein) that helps to regulate metabolism. What organelle is most likely abundant in cells of the thyroid gland?

- ☐ A. lysosomes
- ☐ B. mitochondria
- ☒ C. free ribosomes
- ☐ D. rough endoplasmic reticulum

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Cellular respiration can be described as the conversion of the energy _____.

- ☒ A. stored in food molecules to energy stored in ATP
- ☐ B. of sunlight to energy stored in organic compounds
- ☐ C. stored in ATP to energy stored in food molecules
- ☐ D. stored in ATP to energy used to do work

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Diffusion is an example of _____.

- ☐ A. phagocytosis
- ☐ B. endocytosis
- ☒ C. passive transport
- ☐ D. active transport

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Glucose molecules provide energy to power the swimming motion of sperm. In this example, the sperm are changing _____.

- ☐ A. kinetic energy into chemical energy
- ☐ B. kinetic energy into potential energy
- ☒ C. chemical energy into kinetic energy
- ☐ D. chemical energy into potential energy

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In plant cells, _____ may contain organic nutrients, pigments, and poisons.

- ☐ A. mitochondria
- ☐ B. lysosomes
- ☒ C. central vacuoles
- ☐ D. chloroplasts

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Information is transferred from the nucleus to ribosomes via _____.

- ☐ A. smooth endoplasmic reticulum
- ☐ B. rough endoplasmic reticulum
- ☐ C. DNA
- ☒ D. mRNA

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Lysosomes are responsible for _____.

- ☐ A. lipid synthesis
- ☐ B. cellular respiration
- ☐ C. protein synthesis
- ☒ D. digestion of organic matter inside the cell

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Microtubules are associated with _____.

- ☐ A. flagella
- ☒ B. all of the answer choices
- ☐ C. cell shape
- ☐ D. cilia

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One difference between eukaryotic and prokaryotic cells is that eukaryotic cells _____ prokaryotic cells.

- ☐ A. have a plasma membrane, which is lacking in
- ☐ B. have a nucleoid region, which is lacking in
- ☐ C. have DNA, which is lacking in
- ☒ D. have membrane-enclosed structures called organelles, which are lacking in

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Plants are susceptible to bacterial infections, which can damage their structure or even kill them. Which of the following would be the best antibiotic to treat a plant that is infected with bacteria?

- ☐ A. a drug that disrupts cell wall structure and function
- ☐ B. a drug that destroys the central vacuole
- ☒ C. a drug that blocks gene expression in circular chromosomes
- ☐ D. a drug that interferes with mitochondria function

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Tay-Sachs disease results from _____ lacking a specific type of digesting enzyme

- ☒ A. lysosomes
- ☐ B. the endoplasmic reticulum
- ☐ C. the Golgi apparatus
- ☐ D. mitochondria

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The concept of a membrane as a fluid mosaic reflects the ability of _____.

- ☐ A. phospholipids but not proteins to drift about in the plane of the membrane
- ☐ B. most proteins but not phospholipids to drift about in the plane of the membrane
- ☐ C. carbohydrates to drift into and out of the membrane structure
- ☒ D. phospholipids and most proteins to drift about in the plane of the membrane

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The structural combination of DNA and protein forms _____.

- ☐ A. RNA
- ☐ B. nucleoli
- ☒ C. chromatin
- ☐ D. ribosomes

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What evidence strongly suggests that mitochondria might have evolved before chloroplasts?

- ☐ A. Only mitochondria have their own DNA.
- ☐ B. Mitochondria can sometimes divide to produce chloroplasts.
- ☐ C. Some mitochondria have chloroplasts inside of them.
- ☒ D. Essentially all eukaryotes have mitochondria (or evidence of once having mitochondria) but only some cells have chloroplasts.

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Where does protein synthesis take place?

- ☒ A. on ribosomes
- ☐ B.) in the nucleus
- ☐ C. in the nucleolus
- ☐ D. on smooth endoplasmic reticulum

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Which of the following is a characteristic of chloroplasts that suggests that they might have evolved from free-living bacteria?

- ☒ A. Chloroplasts have their own DNA.
- ☐ B. Chloroplasts have cell walls.
- ☐ C. A single, highly folded plasma membrane surrounds chloroplasts.
- ☐ D. Chloroplasts contain pigments.

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Which of the following is an adaptation to increase the surface area of a part of a cell that is involved in cellular respiration?

- ☐ A. the endoplasmic reticulum
- ☒ B. the cristae of a mitochondrion
- ☐ C. the grana of a chloroplast
- ☐ D. the outer membrane of a chloroplast

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Which of the following processes could result in the net movement of a substance into a cell, if the substance is more concentrated in the cell than in the surroundings?

- ☒ A. active transport
- ☐ B. facilitated diffusion
- ☐ C. diffusion
- ☐ D. osmosis

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Which theory states that all living things are composed of cells?

- ☐ A. Hooke's rule
- ☒ B. cell theory
- ☐ C. Mendel's law
- ☐ D. evolutionary theory

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